

Liming Li

Department of Physics

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EDUCATION

- 2001-2006 Division of Geological and Planetary Sciences, Caltech
Ph. D. in Planetary Sciences. Supervisor: Dr. Andrew P. Ingersoll
- 1998–2001 Department of Geophysics, Peking University, Beijing, China
M.S. in Meteorology. Supervisor: Dr. Shikuo Liu
- 1994-1998 Department of Atmospheric Sciences, Nanjing University, Nanjing, China
B.S. with honor in Atmospheric Science

PROFESSIONAL EXPERIENCE

- 2007-2008 Research Associate, Department of Astronomy, Cornell University
Advisors: Dr. Conrath Barney, Dr. Peter Gierasch, and Dr. Don Banfield
- 2009-2012 Research Assistant Professor, Department of Earth and Atmospheric Sciences,
University of Houston
- 2012- 2017 Assistant Professor, Department of Physics, University of Houston
- 2017- 2022 Associate Professor, Department of Physics, University of Houston
- 2022-present Professor, Department of Physics, University of Houston

ACADEMIC AWARDS AND HONORS

- Selected by NASA to be a participating scientist for three instruments (Composite Infrared Spectrometer, Imaging Science Subsystem, and Visual and Infrared Mapping Spectrometer) on **Cassini** (2015-)
Note: The international flagship mission-Cassini, which is supported by NASA, the European Space Agency, and the Italian Space Agency, annually selects about 3-10 outstanding candidates from a global pool to be participating scientists.
- Selected to be a science team member of the Microwave Radiometer on **Juno** (2015-)
Note: Juno is a NASA New Frontiers mission, which is the first polar-orbiting spacecraft to Jupiter. Because of its great performance, the Juno mission was extended to 2024.
- NASA Jet Propulsion Laboratory (JPL) Summer Faculty Research Program (2015)
Note: NASA JPL annually selects a few faculty members from different universities to engage in research of mutual interest to the faculty members and JPL researchers.
- University of Houston 50-in-5 scholar (2018)
- NASA Group Achievement Award (Cassini CIRS, Solstice Mission) (2018)
- NASA Group Achievement Award (Cassini CIRS, Grand Finale Orbits) (2018)
- Outstanding Reviewer Award for the journal *Icarus* (2019, 2020)
Note: Icarus is one of the key journals in the field of planetary science (please see <https://www.journals.elsevier.com/icarus>).
- Selected as **Scialog Fellow** (2020)
Note: The [Scialog Program](http://rescorp.org/scialog) (<http://rescorp.org/scialog>), which is supported by the Research Corporation for Science Advancement and the Gordon and Betty Moore Foundation, selects highly promising early to mid career scientists to participate in a program to identify and address scientific challenges of global significance.

MANUSCRIPTS SUBMITTED AND IN REVISION**(The asteroid “*” indicates papers led by my students)**

50. Li, C., L. N. Fletcher, M. Allison, S. Atreya, G. Bjoraker, S. Bolton, E. Galanti, T. Guillot, A. Ingersoll, M. Janssen, Y. Kaspi, S. Levin, L. Li, G. Orton, F. Oyafuso, P. Steffes, M. H. Wong, Z. Zhang, J. Sinclair, P. Donnelly, T. Fujiyoshi, T. Greathouse, The internal structure of Jupiter’s Great Red Spot, *Science*, 2021. In Revision.

BOOK CHAPTER

49. Janssen, M. A., J.E. Oswald, S.T. Brown, S. Gulkis, S.M. Levin, S.J. Bolton, M.D. Allison, S.K. Atreya, D.Gautier, A.P. Ingersoll, J.I. Lunine, G.S. Orton, T.C. Owen, P.G. Steffes, V. Adumitroaie, A. Bellotti, L.A. Jewell, C. Li, L. Li, S. Misra, F.A. Oyafuso, D. Santos-Costa, E. Sarkissian, R. Williamson, J.K. Arballo, A. Kitiyakara, A. Ulloa-Severino, J.C. Chen, F.W. Maiwald, A.S. Sahakian, P.J. Pingree, K.A. Lee, A.S. Mazer, R. Redick, R.E. Hodges, R.C. Hughes, G. Bedrosian, D.E. Dawson, W.A. Hatch, D.S. Russell, N.F. Chamberlain, M.S. Zawadski, B. Khayatian, B.R. Franklin, H.A. Conley, J.G. Kempenaar, M.S. Loo, E.T. Sunada, V. Vorperion, and C.C. Wang, “MWR: Microwave radiometer for the Juno mission to Jupiter”, in *The Juno Mission*, Scott Bolton, Editor Springer, 2017 (see http://ps.phys.uh.edu/Janssen_SSR_2017.pdf).

WHITE PAPER to Planetary Science and Astrobiology Decadal Survey 2023-2032

(National Academies of Sciences, Engineering, and Medicine)

48. Li, L., West, R. A., Kenyon, M. E., Nixon, C. A., Fry, P. M., Wenkert, D., Hofstadter, M. D., Jiang, X., Creecy, E. C., Sanchez-Lavega, A., Baines, K. H., Mallama, A., Hu, R., Achterberg, R. K., Aslam, S., Banfield, D., Dyudina, U., Fortney, J. J., Ingersoll, A. P., Kleinböhl, A., Fletcher, L., Limaye, S., Marley, M. S., Smith, M. D., Soderlund, K. M., Spilker, L. J., Young, C. L. Radiant Energy Budgets and Internal Heat of Planets and Moons, *Bulletin of American Astronomical Society (BAAS)*, 53, doi:10.3847/25c2cfef.0d20e989, 2021a (see http://ps.phys.uh.edu/Li_BAAS_2021.pdf).
47. Guillot, T., J. Fortney, E. Rauscher, M. Marley, V. Parmentier, M. Line, H. Wakeford, Y. Kaspi, R. Helled, M. Ikoma, H. Knutson, K. Menou, D. Valencia, D. Durante, S. Ida, S. Bolton, C. Li, K. Stevenson, J. Bean, N. Cowan, M. Hofstadter, R. Hueso, J. Leconte, L. Li, C. Mordasini, O. Mousis, N. Nettelmann, K. Soderlund, and M. Wong. Keys of a Mission to Uranus or Neptune, the Closest Ice Giants, *Bulletin of American Astronomical Society (BAAS)*, 53, doi:10.3847/25c2cfef.a267c514, 2021 (see http://ps.phys.uh.edu/Guillot_BAAS_2021.pdf).

PUBLICATIONS IN PEER-REVIEW JOURNALS**(The asteroid “*” indicates papers led by my students. Full texts of published papers are available at <http://ps.phys.uh.edu/publications.html>)**

46. *Creecy, E., Li, L., Jiang, X., Smith, M. D., Kleinboehl, A., Kass, D. M., and Martinez, G. Mars’ Emitted Energy and Seasonal Energy Imbalance. *PNAS*, doi: 10.1073/pnas.2121084119, 2022. The study was reported by the media including Universities Space Research Association (USRA), “Discover” magazine, and “Weird” magazine (e.g., <https://newsroom.usra.edu/new-study-reveals-solar-heat-to-be-the-likely-cause-of-dust-storms-on-mars/>), 2022.
45. Ingersoll, A. P., S. Atreya, S. J. Bolton, S. Brueschaber, L. N. Fletcher, E. Galanti, K. Kaspi, S. M. Levin, C. Li, L. Li, J. I. Lunine, G. S. Orton, H. Waite, Jupiter’s overturning circulation: Breaking waves take the place of solid boundaries, *Geophysical Research Letters*, doi.org/10.1029/2021GL095756, 2021.

44. Duer, K., Gavriel, N., Galanti, E., Kaspi, Y., Fletcher, L. N., Bolton, S. J., Grassi, D., Guillot, T., Ingersoll, A. P., Levin, S. M., Li, C., **Li, L.**, Lunine, J. I., Orton, G. S., Oyafuso, F. A., Waite, H., Evidence for multiple Ferrel cells on Jupiter, *Geophysical Research Letters*, doi.org/10.1029/2021GL095651, 2021.
Reported by NASA media briefing on October 28, 2021 (see <https://www.nasa.gov/press-release/nasa-to-host-briefing-to-reveal-new-findings-from-jupiter-s-atmosphere> and <https://www.facebook.com/NASAJPL/videos/jupiters-3d-atmosphere-revealed-by-nasas-juno-spacecraft-media-briefing/472145084048889/>).
43. **Li, L.**, E. Creecy, X. Jiang, R. West, C. Nixon, P. Fry, and M. Kenyon, Titan's Global Radiant Energy Budget During the Cassini Epoch (2004-2017), *Geophysical Research Letters*, doi.org/10.1029/2021GL095356, 2021.
42. **Li, L.**, A. *Studwell, T. E. Dowling, M. E. Bradley, E. C. *Creecy, R. J. *Albright, X. Jiang, Unsymmetrical expansion of bright clouds from Saturn's 2010 Great White Storm, *Icarus*, doi.org/10.1016/j.icarus.2021.114650, 2021.
41. Fletcher, L. N., F. A. Oyafuso, M. Allison, A. Ingersoll, **L. Li**, Y. Kaspi, E. Galanti, M.H. Wong, G.S. Orton, K. Duer, Z. Zhang, C. Li, T. Guillot, S.M. Levin, S. Bolton, Jupiter's Temperate Belt/Zone Contrasts Revealed at Depth by Juno Microwave Observations, *Journal of Geophysical Research-Planets*, doi.org/10.1029/2021JE006858, 2021.
40. Heng, K. and **L. Li**, Jupiter as an exoplanet: insight from Cassini phase curves. *The Astrophysical Journal Letter*, 909, doi:10.3847/2041-8213/abe872, 2021.
39. Zhang, Z., V. Adumitroaie, M. Allison, J. Arballo, S. Atreya, G. Bjoraker, S. Bolton, S. Brown, L. N. Fletcher, T. Guillot, S. Gulkis, **A. Hodges**, **A. Ingersoll**, **M. Janssen**, **S. Levin**, **C. Li**, **L. Li**, **J. Lunine**, **S. Misra**, **G. Orton**, **F. Oyafuso**, **P. Steffes**, **M. H. Wong**, 2020. Residual study: Testing Jupiter atmosphere models against Juno MWR observations. *Earth and Space Science*, 7, doi:10.1029/2020EA001229, 2020.
38. Li, C., A. Ingersoll, S. Bolton, S. Levin, M. Janssen, S. Atreya, J. Lunine, P. Steffes, S. Brown, T. Guillot, M. Allison, J. Arballo, A. Bellotti, V. Adumitroaie, S. Gulkis, A. Hodges, **L. Li**, S. Misra, G. Orton, F. Oyafuso, D. Santos-Costa, H. Waite, Z. Zhang, The water abundance in Jupiter's equatorial zone, *Nature Astronomy*, doi:10.1038/s41550-020-1009-3, 2020. This study was reported by the media including *NASA*, *Cosmos Magazine*, and *Tech Explorist* (e.g., <https://www.jpl.nasa.gov/news/news.php?feature=7599>).
37. *Creecy E., **L. Li**, X. Jiang, C. Nixon, R. West, M. Kenyon, Seasonal Variations of Titan's Brightness, *Geophysical Research Letters*, doi.org/10.1029/2019GL084833, 2019. This study was reported by the media including *Fox news*, *sciencedaily*, and *phys.org* (e.g., <https://www.foxnews.com/science/saturns-moon-titan-insights-into-life-on-earth>).
36. **Li, L.**, X. Jiang, R. A. West, P. J. Gierasch, S. Perez-Hoyos, A. Sanchez-Lavega, L. N. Fletcher, J. J. Fortney, B. Knowles, C. C. Porco, K. H. Baines, P. M. Fry, A. Mallama, R. K. Achterberg, A. A. Simon, C. A. Nixon, G. S. Orton, U. A. Dyudina, S. P. Ewald, Less Absorbed Solar Energy And More Internal Heat For Jupiter, *Nature Communications*, doi:10.1038/s41467-018-06107-2, 2018. Please see the short news on "Planetary News" (e.g., https://www.lpi.usra.edu/planetary_news/2018/10/15/jupiter-is-hotter-and-much-more-reflective-than-we-thought/).
35. *Studwell, A., **L. Li**, X. Jiang, K. Baines, P. Fry, T. Momary, L. Sromovsky, Saturn's zonal winds probed by the Cassini VIMS 5-micron images. *Geophysical Research Letters* 45, doi:10.1029/2018GL078139, 2018 (Invited paper to a special issue on *GRL* for the Cassini Grand-Finale mission).
34. Brown, S., M. Janssen, V. Adumitroaie, S. Atreya, S. Bolton, S. Gulkis, A. Ingersoll, S. Levin, C. Li, **L. Li**, J. Lunine, S. Misra, G. Orton, P. Steffes, F. Tabataba-Vakili, Prevalent lightning

- sferics at 600 megahertz near Jupiter's poles, *Nature* 568, 87-90, 2018. This study was reported by the media including *Science News*, *Phys.org*, *Scientific American*, and *Science Alert* (e.g., <https://www.sciencealert.com/jupiter-lightning-whistlers-radio-emissions-detected-megahertz-range-juno>).
33. *Kao, A., X. Jiang, **L. Li**, J. H. *Trammell, G. J. Zhang, H. Su, and Y. L. Yung, A Comparative Study of Atmospheric Moisture Recycling Rate Between Observations and Models, *Journal of Climate* 31, 2389-2398, 2018.
 32. Fletcher, L. N., S. Guerlet, G. Orton, R. Cosentino, T. Fouchet, P. Irwin, **L. Li**, N. Gorius, F. M. Flasar, R. Morales-Juberias, Disruption of Saturn's Quasi-Periodic Equatorial Oscillation by the Great Northern Storm, *Nature Astronomy* 1, 765–770, doi:10.1038/s41550-017-0271-5, November 2017. This study was covered by a News and Views on *Nature* (<http://rdcu.be/x2qL>).
 31. Janssen, M. A., J.E. Oswald, S.T. Brown, S. Gulkis, S.M. Levin, S.J. Bolton, M.D. Allison, S.K. Atreya, D.Gautier, A.P. Ingersoll, J.I. Lunine, G.S. Orton, T.C. Owen, P.G. Steffes, V. Adumitroaie, A. Bellotti, L.A. Jewell, C. Li, **L. Li**, S. Misra, F.A. Oyafuso, D. Santos-Costa, E. Sarkissian, R. Williamson, J.K. Arballo, A. Kitiyakara, A. Ulloa-Severino, J.C. Chen, F.W. Maiwald, A.S. Sahakian, P.J. Pingree, K.A. Lee, A.S. Mazer, R. Redick, R.E. Hodges, R.C. Hughes, G. Bedrosian, D.E. Dawson, W.A. Hatch, D.S. Russell, N.F. Chamberlain, M.S. Zawadski, B. Khayatian, B.R. Franklin, H.A. Conley, J.G. Kempenaar, M.S. Loo, E.T. Sunada, V. Vorperion, and C.C. Wang, MWR: Microwave radiometer for the Juno mission to Jupiter, *Space Science Reviews*, 1-47, <https://doi.org/10.1007/s11214-017-0349-5>, November 2017.
 30. *Corbett, A., X. Jiang, X. Xiong, A. *Kao, and **L. Li**, Modulation of mid-tropospheric methane by El Nino. *Earth & Space Science* 4, doi:10.1002/2017EA000281, September 2017.
 29. *Kao, A., X. Jiang, L. Li, H. Su, and Y. Yung, Precipitation, circulation, and cloud variability over the past two decades. *Earth & Space Science* 4, doi:10.1002/2017EA000319, September 2017.
 28. Ingersoll, A.P., V. Adumitroaie, M. D. Allison, S. Atreya, A. A. Bellotti, S. J. Bolton, S.T. Brown, S. Gulkis, M. A. Janssen, S.M. Levin, C. Li, **L. Li**, J. I. Lunine, G. S. Orton, F. A. Oyafuso, P. G. Steffes, 2017. Implications of the ammonia distribution on Jupiter from 1 to 100 bars as measured by the Juno microwave radiometer. *Geophys. Res. Lett.* 44, doi:10.1002/2017GL074277, August 2017.
 27. Jiang, X., A. *Kao, A. *Corbett, E. Olsen, T. Pagano, A. Zhai, S. Newman, **L. Li**, Y. Yung, Influence of Droughts on Mid-tropospheric CO₂, *Remote Sensing*, doi:10.3390/rs9080852, August 2017.
 26. *Pan, Y., **L. Li**, X. Jiang, G. Li, W. Zhang, A. P. Ingersoll. Earth's varying global atmospheric energy cycle in response to climate change, *Nature Communications* 8, doi:10.1038/ncomms14367, January 2017. This study was reported by the media including ScienceDaily, AccuWeather, Science Magazine, Environmental News Network, and so on (e.g., <https://www.sciencedaily.com/releases/2017/01/170124111330.htm>). It was also reported by NASA Astrobiology Magazine (<https://astrobiology.nasa.gov/news/what-the-energy-cycles-of-other-planets-can-tell-us-about-climate-change-on-earth/>).
 25. Bering, E. A., L. S. Pinsky, **L. Li**, D. Jackson, J. Chen, H. Reed, M. Moldwin, J. Kasper, J. P. Sheehan, J. Forbes, T. Heine, A. Case, M. Stevens, MarsCAT: Mars Array of ionospheric Research Satellites using the CubeSat Ambipolar Thruster, *54th AIAA Aerospace Sciences Meeting, AIAA SciTech Forum*, <http://dx.doi.org/10.2514/6.2016-1466>, 2016.
 24. *Trammell, H. J., **L. Li**, Jiang, X., *Pan, Y., Smith, M.A., Bering, E.A., Hörst, S.M., Vasavada, A.R., Ingersoll, A.P., Janssen, M.A. and West, R.A., 2016. Vortices in Saturn's Northern

- Hemisphere (2008–2015) observed by Cassini ISS. *Journal of Geophysical Research: Planets* 121, 1814-1826, 2016.
23. Sanchez-Lavega, A., E. García-Melendo, S. Perez-Hoyos, R. Hueso, M. H. Wong, A. Simon, J. F. Sanz-Requena, A. Antuñano, N. Barrado-Izagirre, I. Garate-Lopez, J. F. Rojas, T. del Rio Gaztelurrutia, J. M. Gómez-Forrellad, I. de Pater, **L. Li** and PVOL contributors, An Enduring Rapidly Moving Storm As a Guide to Saturn's Equatorial Jet Complex Structure, *Nature Communications* 7, doi:10.1038/ncomms13262, 2016. [The study was reported by the media including ScienceDaily, CAHA, Science Newline, Pinterest, and so on \(e.g., http://www.sciencenewline.com/summary/2016111113270090.html \)](http://www.sciencenewline.com/summary/2016111113270090.html).
 22. Dyudina, U., X. Zhang, **L. Li**, R. A. West, P. Kopparla, Y. L. Yung, A. P. Ingersoll, L. Dones, Reflected Light Curves, Spherical and Bond Albedos of Jupiter- and Saturn-like Exoplanets, *Ap. J.*, 618, 973-986, 2016.
 21. *Trammell, J. H., X. Jiang, **L. Li**, A. *Kao, G. J. Zhang, E. Chang, and Y. L. Yung, Temporal and spatial variability of precipitation from observation and model, *Journal of Climate* 29, 2543-2555, 2016.
 20. *Trammell, J. H., X. Jiang, **L. Li**, M. Liang, M. Li, J. Zhou, E. Fetzer, and Y. L. Yung, Investigation of Precipitation Variations over Wet and Dry Areas from Observation and Model, *Advances in Meteorology*, Art. No. 981092, 2015.
 19. **Li, L.**, X. Jiang, H. J. *Trammell, Y. *Pan, J. *Hernandez, B. J. Conrath, P. J. Gierasch, R. K. Achterberg, C. A. Nixon, F. M. Flasar, S. Perez-Hoyos, R. A. West, K. H. Baines, and B. Knowles, Saturn's giant storm and global radiant energy, *Geophys. Res. Lett.*, 42, doi:10.1002/2015GL063763, 2015.
 18. Simon, A. A., **Li, L.**, Reuter, D. C, Small-scale waves on Jupiter: A reanalysis of New Horizons, Voyager, and Galileo data, *Geophys. Res. Lett.*, 42, doi:10.1002/2015GL063433, 2015.
 17. **Li, L.**, Dimming Titan revealed by the Cassini observations. *Scientific Reports*, doi:10.1038/srep08239, 2015.
 16. *Trammell, H. J., **L. Li**, X. Jiang, M. Smith, S. Horst, and A. Vasavada, The global vortex analysis of Jupiter and Saturn based on Cassini Imaging Science Subsystem. *Icarus* 242, doi:10.1016/j.icarus.2014.07.019, 2014.
 15. **Li, L.**, R. K. Achterberg, B. J. Conrath, P. J. Gierasch, C. A., Nixon, F. M., Flasar, A. R. Vasavada, A. D. Del Genio, R. A., West, Strong Temporal Variability Over One Saturnian Year: From Voyager to Cassini. *Scientific Reports*, doi:10.1038/srep02410, 2013.
 14. **Li, L.**, K. H. Baines, M. A. Smith, R. A. West, S. Pérez-Hoyos, H. J. *Trammell, A. Simon-Miller, B. Conrath, P. J. Gierasch, G. S. Orton, C. A. Nixon, G. Filacchione, P. M. Fry, and T. W. Momary, Emitted power of Jupiter based on Cassini CIRS and VIMS observations. *J. Geophys. Res.*, doi:10.1029/2012JE004191, 2012.
 13. **Li, L.**, X. Jiang, M. T. Chahine, J. *Wang, Y. L. Yung, Atmospheric energetics in El Nino and La Nina years. *Journal of the Atmospheric Sciences*, 68, 3072-3078, 2011d.
 12. **Li, L.**, X. Jiang, M. T. Chahine, E. T. Olsen, E. Fetzer, L. Chen, Y. L. Yung, Recycling rate of atmospheric moisture over the past two decades. *Environmental Research Letters* 6, doi:10.1088/1748-9326/6/3/034017, 2011c. [Please refer to the insight news on the ERL web \(http://environmentalresearchweb.org/cws/article/news/47247\)](http://environmentalresearchweb.org/cws/article/news/47247).
 11. **Li, L.**, X. Jiang, A. P. Ingersoll, A. D. Del Genio, C. C. Porco, R. A. West, A. R. Vasavada, S. P. Ewald, B. J. Conrath, P. J. Gierasch, A. A. Simon-Miller, C. A. Nixon, R. K. Achterberg, G. S. Orton, L. N. Fletcher, K. H. Baines, Equatorial winds on Saturn and the stratospheric oscillation. *Nature Geoscience*, doi:10.1038/ngeo1292, 2011b. [Please refer to the insight news \(http://www.nsm.uh.edu/news-events/stories/2011/1104_liJiang.php\)](http://www.nsm.uh.edu/news-events/stories/2011/1104_liJiang.php).
 10. **Li, L.**, C. A. Nixon, R. Achterberg, M. A. Smith, N. J. P. Gorius, X. Jiang, B. Conrath, P.

- Gierasch, A. A. Simon-Miller, F. M. Flasar, A. P. Ingersoll, K. Baines, R. A. West, A. R. Vasavada, S.P. Ewald, The Global Energy Balance of Titan, *Geophys. Res. Lett.* 38, Art. No. L23201, 2011a. Please refer to the highlights on the American Geophysical Union (<http://onlinelibrary.wiley.com/doi/10.1029/2012EO070017/abstract>). The paper was also selected to be the cover page of the journal of *GRL*.
9. Li, L., B. Conrath, P. Gierasch, R. Achterberg, C. A. Nixon, A. A. Simon-Miller, F. M. Flasar, D. Banfield, K. H. Baines, R. A. West, A. R. Vasavada, A. Mamoutkine, M. Segura, G. Bjoraker, G. S. Orton, L. N. Fletcher, P. Irwin, P. Read, Emitted power of Saturn, *J. Geophys. Res.*, 115, E11002, doi:10.1029/2010JE003631, 2010. Please refer to the NASA feature story titled “Saturn is on a cosmic dimmer switch” on NASA website (http://www.nasa.gov/mission_pages/cassini/whycassini/dimmer-switch.html).
 8. Li, L., P. J. Gierasch, R. K. Achterberg, B. J. Conrath, F. M. Flasar, A. R. Vasavada, A. P. Ingersoll, D. Banfield, A. A. Simon-Miller, L. N. Fletcher, Strong jet and a new thermal wave in Saturn's equatorial stratosphere. *Geophys. Res. Lett.* 35(23), Art. No. L23208, 2008.
 7. Li L., A. P. Ingersoll, X. Jiang, D. Feldman, and Y. L. Yung, Lorenz energy cycle of the global atmosphere based on reanalysis datasets. *Geophys. Res. Lett.* 34(16), L16813, 2007.
 6. Li L., A. P. Ingersoll, A. R. Vasavada, A. A. Simon-Miller, R. K. Achterberg, S. P. Ewald, U. A. Dyudina, C. C. Porco, R. A. West, and F. M. Flasar, Waves in Jupiter's atmosphere observed by the Cassini ISS and CIRS instruments, *Icarus* 185, 416-419, 2006c.
 5. Li L., A. P. Ingersoll and X. L. Huang, Interaction of moist convection with zonal jets on Jupiter and Saturn, *Icarus* 180, 113-123, 2006b.
 4. Li L., A. P. Ingersoll, A. R. Vasavada, A. A. Simon-Miller, A. D. Del Genio, S. P. Ewald, C. C. Porco, and R. A. West, Vertical wind shear on Jupiter from Cassini images, *J. Geophys. Res.* 111, Art. No. E04004, 2006a.
 3. Li L., A. P. Ingersoll, A. R. Vasavada, C. C. Porco, A. D. Del Genio and S. P. Ewald, Life cycles of spots on Jupiter from Cassini images, *Icarus* 172, 9-23, 2004.
 2. Li L., F. Huang, D. Chi, S. Liu, Thermal effects of the Tibetan Plateau on Rossby waves, *Advances in Atmospheric Science* 19, 901-913, 2002.
 1. Li L., D. Huang, F. Qiao, S. Liu, The diabatic waves in barotropic model, *Journal of tropical meteorology* 6, 1-12, 2000.

ORAL PRESENTATIONS

• Invited Talks

22. Juno Science Meeting, Southwest Research Institute, San Antonio, TX, “Meridional distribution of Jupiter’s internal heat”. August 27, 2019.
21. University of Texas Institute For Geophysics Seminar (UT Austin), Austin, TX, “Energies of Planetary Atmospheres”, September 7, 2018.
20. Conference of Comparative Climatology of Terrestrial Planets, Lunar and Planetary Institute, Houston, TX, “Exploration of Planetary Atmospheres and Climatology From an Energy Perspective”, August 28, 2018.
19. Cassini Science Meeting, National Museum of XXI Century Arts, Roma, Italy. “Saturn’s Global Winds Explored by Cassini/VIMS”, March 8, 2018.
18. Juno Science Meeting, Southwest Research Institute, San Antonio, TX, “The Large-scale Banded Structure on Jupiter”. August 30, 2017.
17. Cassini Grand-Finale Science Meeting, NASA/JPL, Pasadena, CA. “Saturn’s Polar Winds from Cassini Multi-instrument Observations”, October 3, 2017.
16. Society of Physics Students (SPS) Colloquium, Lee College, Baytown, TX, “Exploration of The Giant Planets in Our Solar System”. April 15, 2017.

15. Juno Science Meeting, Southwest Research Institute, San Antonio, TX, “The large vortices on Jupiter and Saturn with observations from Voyager, Cassini, and Juno”. September 1, 2016.
14. Cassini Science Meeting, NASA/JPL, Pasadena, CA. “Titan’s Energy Budget and Its Temporal Variation”, October 20, 2015.
13. Cassini Science Meeting, NASA/JPL, Pasadena, CA. “Saturn’s energy budget, winds, and vortices”, October 21, 2015.
12. Juno Science Meeting, NASA/JPL, Pasadena, CA. “Comparative studies of planetary vortices”, August 13, 2015.
11. Cassini Participating Scientists Conference, NASA/JPL, Pasadena, CA. “Radiant Energy Budgets of Jupiter, Saturn, and Titan”, June 22, 2015.
10. Department of Atmospheric and Oceanic Science, Peking University, China, “Energies of Planets”, June 16, 2015.
9. Planetary Science Seminar, Division of Geological and Planetary Sciences, Caltech, CA. “Exploring Planetary Atmospheres from the Perspective of Energy”, June 2014.
8. Department Colloquium, Department of Physics and Astronomy, College of Charleston, SC. “Energy Budgets of Giant Planets and Titan”, March 2013.
7. Department Seminar, Department of Earth & Atmospheric Sciences, University of Houston, “Jupiter and Saturn Observed by Spacecraft Cassini”, April 2012.
6. Brown Bag Seminar, Department of Atmospheric Science, University of Alabama in Huntsville, AL. “Atmospheric Dynamics of the Giant Planets”. February 2011.
5. NASA Sounder Science Team Meeting, NASA, Washington DC. “Precipitation and global warming”. October 2010.
4. NASA Sounder Science Team Meeting, NASA, Washington DC. “Hydrologic recycle of atmospheric moisture”, October 2009.
3. The fiftieth year of the Geophysical Fluid Dynamics (GFD) program at the Woods Hole Oceanographic Institution, MA. “Atmospheric Jets and Waves”, July 2008.
2. NASA JPL Oceanography Section, CA. “Atmospheric dynamics of Jupiter”, March 2007.
1. Department Colloquium, Department of Atmospheric and Oceanic Sciences, UCLA, CA. “Jovian atmosphere from observation and theory”, June 2006.

• **Conferences (The asteroid “*” indicates papers led by my students).**

45. Duer, K., Gavriel, N., Galanti, E., Kaspi, Y., Fletcher, L. N., Bolton, S. J., Grassi, D., Guillot, T., Ingersoll, A. P., Levin, S. M., Li, C., **Li, L.**, Lunine, J. I., Orton, G. S., Oyafuso, F. A., Waite, H., Evidence for multiple Ferrel cells on Jupiter. *EGU General Assembly*, Vienna and Austria, May 23-27, 2022.
44. *Creedy, E., **L. Li**, X. Jiang, M. D. Smith, P. M. Fry, A. Kleinboehl, D. M. Kass, Mars’ radiant energy budget. *AGU Fall Meeting*, Dec. 13-17, 2021.
43. *Creedy, E., **L. Li**, X. Jiang, R. West, P. Fry, C. Nixon, M. Kenyon, M., Smith, D. Kass, A. Kleinboehl. The radiant energy budgets of Titan and Mars. DPS meeting. *Bull. Am. Astron. Soc.*, 53, 2021.
42. *Creedy, E. C., **L. Li**, X. Jiang, R. A. West, C. A. Nixon, P. M. Fry, The global radiant energy budgets of Titan and Mars, LPI No. 2548, *52nd Lunar and Planetary Science Conference*, 2021.
41. *Creedy, E., **Li L.**, Jiang, X., West, R. A., Fry, P. M., Nixon, C. A., Kenyon, M. E. Energy Imbalance on Titan, P071-04, *AGU Fall Meeting*, Dec. 1-17, 2020.
40. Li, C., L. N. Fletcher, M. Allison, S. Atreya, G. Bjoraker, S. Bolton, E. Galanti, T. Guillot, A. Ingersoll, M. Janssen, Y. Kaspi, S. Levin, **L. Li**, G. Orton, F. Oyafuso, P. Steffes, M. H. Wong, Z. Zhang, J. Sinclair, P. Donnelly, T. Fujiyoshi, T. Greathouse, The internal structure of Jupiter’s Great Red Spot, A076-15, *AGU Fall Meeting*, Dec. 1-17, 2020.

39. Fletcher, L. N., F. A. Oyafuso, M. Allison, A. Ingersoll, **L. Li**, Y. Kaspi, E. Galanti, M.H. Wong, G.S. Orton, K. Duer, Z. Zhang, C. Li, T. Guillot, S.M. Levin, S. Bolton, Jupiter's Temperate Belt/Zone Contrasts Revealed at Depth by Juno Microwave Observations, EuroPlanet Science Congress (EPSC), September 30, 2020.
38. **Li, L.**, R. West, C. Nixon, M. Kenyon, M. Hofstadter, Future Exploration of the Radiant Energy Budgets and Internal Heat of Uranus and Neptune, Ice Giant Systems 2020 Conference, London, January 20-22, 2020.
37. **Li, L.**, R. West, C. Nixon, M. Kenyon, M. Hofstadter, Exploring the Radiant Energy Budgets of Planets and Moons With Future Missions, AGU, San Francisco, December 9-13, 2019b.
36. **Li, L.**, R. West, C. Nixon, M. Kenyon, Exploration of radiant energy budgets and internal heat of planets and satellites, NASA Outer Planets Assessment Group (OPAG) Meeting, Washington D. C., April 23-24, 2019a.
35. *Creedy, E., **Li, L.**, X. Jiang, R. West, C. Nixon, M. Kenyon, Seasonal Variations of Titan's brightness, AGU, San Francisco, December 9-13, 2019.
34. *Studwell, A., **Li, L.**, X. Jiang, T. Dowling, Unsymmetrical expansion of bright clouds from Saturn's 2010 giant white storm, AGU, San Francisco, December 9-13, 2019.
33. Jiang, X., **Li, L.**, Y. *Pan, Response of global atmospheric energy cycle to climate change, AGU, San Francisco, December 9-13, 2019.
32. Levin, S. and 19 co-authors including **L. Li**, Jupiter As Seen By The Juno Microwave Radiometer: A Progress Report, AGU, San Francisco, December 9-13, 2019.
31. Zhang, Z. and 15 co-authors including **L. Li**, Residual Study: Testing Jupiter Atmosphere Models Against Juno MWR Observations, AGU, San Francisco, December 9-13, 2019.
30. *Studwell, A., **L. Li**, X. Jiang, K. H. Baines, P. M. Fry, T. Momary, U. Dyudina, Saturn's global zonal winds explored by Cassini/VIMS 5- μ m images, P32A-07, *AGU Fall Meeting*, Dec 10-14, 2018.
29. *Corbett, A., X. Jiang, and **L. Li**, Analysis of solar-induced fluorescence, carbon dioxide, and precipitation from OCO-2 and TRMM, 1046, *98th AMS Annual Meeting*, Jan 7-11, 2018.
28. *La, J., X. Jiang, and **L. Li**, Influence of large-scale circulation on carbon dioxide, 1146, *98th AMS Annual Meeting*, Jan 7-11, 2018.
27. *Corbett, A., X. Jiang, X. Xiong, A. Kao, and **L. Li**, Modulation of mid-tropospheric methane by El Nino, A33G-2444, *AGU Fall Meeting*, Dec 11-15, 2017.
26. Janssen M. and 18 co-authors including **L. Li**, 2017. Latest Results on Jupiter's Atmosphere and Radiation Belts from the Juno Microwave Radiometer, European Planetary Science Congress.
25. Janssen M. and 21 co-authors including **L. Li**, 2016. Early Observations of Jupiter with Juno's Microwave Radiometer, National Radio Science Meeting.
24. **Li L.**, 2016. Spatiotemporal Variability of Saturn's Zonal Winds from Cassini Multi-Instrument Observations. American Geophysical Union Fall meeting.
23. **Li L.**, 2016. The Vortex Dynamics on the Giant Planets. Juno/MWR Science Meeting (Remote Talk).
22. **Li L.**, 2015. Atmospheric circulation and internal heat of Gas giant planets. NASA/JPL. Juno Microwave Radiometer Meeting.
21. **Li L.**, 2015. Seasonal Variations of Saturn's Large-Scale Cloud Structure From Cassini Multi-Instrument Observations. NASA/JPL. Juno Microwave Radiometer Meeting.
20. **Li, L.**, et. al., 2014. Progress in studying radiant energy budgets of Jupiter, Saturn, and Titan. DPS meeting. *Bull. Am. Astron. Soc.*, 46, 2014.
19. Jiang, X., Trammell, J, **Li, L.**, 2014, Investigation of precipitation from observations and models, *NASA NEWS Science Team Meeting*, May 29-30, 2014.

18. Li, L., 2013. Strong atmospheric variations on Saturn: From Voyager to Cassini. DPS meeting. *Bull. Am. Astron. Soc.*, 45, 2013.
17. *Pan, Y., X. Jiang, E. Olsen, T. Pagano, L. Li, Y. Yung, 2013, Investigation of high latitude CO₂ variability from satellite data, AGU 2013 Fall Meeting, A21G-0135, Dec 9-13, 2013.
16. *Trammell, H. J., L. Li., 2013. Atmospheric vortices on Jupiter and Saturn. DPS meeting. *Bull. Am. Astron. Soc.*, 45, 2013.
15. Jiang, X., J. H. *Trammell, L. Li, Y. Yung, 2013, Investigation of Precipitation over wet and dry areas from observation and model, AGU 2013 Fall Meeting, A34E-03, Dec 9-13, 2013.
14. Li, L., *et al.*, 2012, Energy budgets of giant planets and Titan, DPS meeting. *Bull. Am. Astron. Soc.*, 44, 2012.
13. *Trammell, H. J., L. Li, M. Smith, X. Jiang, A. R. Vasavada, 2012, Seasonal changes in vortex behavior on Saturn, DPS meeting, *Bull. Am. Astron. Soc.*, 44, 2012.
12. *Trammell, J. H., L. Li, 2012, Global Analysis of Vortex Activity on Jupiter and Saturn, *AGU 2012 Fall Meeting*, P13B-1939, Dec 3-7, 2012.
11. *Trammell, J. H., X. Jiang, L. Li, M. Liang, J. Zhou, and Y. L. Yung, 2012, Investigation of Atmospheric Recycling Rate from Observation and Model, *AGU 2012 Fall Meeting*, H13K-06, Dec 3-7, 2012.
10. Li, L., T. H. McConnochie, A. Toigo, B. J. Conrath, P. J. Gierasch, 2011, Mechanical energies of the upper atmosphere in the high latitudes of Mars, *AGU 2011 Fall Meeting*, P21A-1653, Dec 5-9, 2011.
9. Jiang, X., L. Li, M. Chahine, E. Olsen, E. Fetzer, L. Chen, Y. Yung, 2011. Recycling rate of atmospheric moisture over the past two decades (1988-2009), *NASA Sounder Science Team Meeting*, Nov 8-11, 2011.
8. Li, L., *et al.*, Emitted power of Saturn based on Cassini/CIRS observations, *EOS Transactions AGU*, Vol., 90, P32C-03, 2009.
7. Li, L., *et al.*, Equatorial jets and waves based on Cassini CIRS/ISS, DPS meeting. *Bull. Am. Astron. Soc.*, 40 2008.
6. Li, L., B. J. Conrath, F. M. Flasar, and P. J. Gierasch, *et al.*, Revisit of the thermal wind equation: application to planetary atmospheres, *EOS Transactions AGU*, Vol., 88(24), P41A-0208, 2007.
5. Li, L., A. P. Ingersoll, X. Jiang, D. Feldman, Y.L. Yung, Lorenz energy cycle of the global atmosphere based on modern datasets, *EOS Transactions American Geophysical Union*, Vol., 87(43), A13D-0969, 2006.
4. Li, L., *et al.*, Waves in Jupiter's atmosphere observed by the Cassini ISS and CIRS instruments, DPS meeting. *Bull. Am. Astron. Soc.*, 38, 2006.
3. Li, L., A. P. Ingersoll, A. R. Vasavada, A. A. Simon-Miller, A. D. Del Genio, S. P. Ewald, C. C. Porco, R. A. West, Vertical wind shear on Jupiter from Cassini images, *EOS Transactions American Geophysical Union*, Vol., 86(46), P11C-0134, 2005.
2. Li, L., A. P. Ingersoll, and X. Huang, Interaction of moist convection with Jupiter's zonal jets, *EOS Transactions American Geophysical Union*, 85(47), P51B-1428, 2004.
1. Li, L., and A. P. Ingersoll, Modeling the interaction of moist convection with the zonal jets of Jupiter, DPS meeting. *Bull. Am. Astron. Soc.*, 36, 2004.

SPACE MISSION PARTICIPATION

1. Cassini: Composite Infrared Spectrometer (CIRS), Imaging Science Subsystem (ISS), and Visual and Infrared Mapping Spectrometer (VIMS).
2. Juno: Microwave Radiometer (MWR)
3. Mars Global Surveyor (MGS): Thermal Emission Spectrometer (TES)
4. Mars Reconnaissance Orbiter (MRO): Mars Climate Sounder (MCS).

5. Aqua satellite: Atmospheric Infrared Sounder (AIRS)

SERVICE

• Department and College Service

1. College: SR1 Building Committee (2012-)
2. Department: Colloquium Committee (2012-), Website Committee (2014-), Faculty Search Committee (2015), Planning Committee (2016-2019), & Library Committee (chair) (2019-)
3. Qualify/Candidacy Exams and Dissertation Committee for PhD Students:
Harold Justin Trammell, Yefeng Pan, James Houston Trammell, Aaron Studwell, Roya Eftekhar, Abigail Corbett, Angela Kao, Henry Fang, Menghao Jaing, Ellen Creecy, Eric Davis, YunPeng Cheng, Yucheng Peng, Ivan Vazquez, Ronald Albright, Larry Duan

• Conference Service

1. Local organizing committee member for the Conference of “Comparative Climatology of Terrestrial Planets” at Lunar and Planetary Institute (Houston, TX) (August 27-30, 2018).
2. Session chair for the Astronomy and Astrophysics I session in the Texas Section of the American Physical Society (TSAPS) conference (October 19, 2018).
3. Co-Convener for the oral session “Jupiter’s Atmosphere through the Eyes of Juno” in AGU Fall meeting (December, 2019).
4. Co-Convener for the poster session “Jupiter’s Atmosphere through the Eyes of Juno” in AGU Fall meeting (December, 2019).
5. Local organizing committee member for the NASA Outer Planets Assessment Group Meeting at Lunar and Planetary Institute (Houston, TX) (February 3-4, 2020).

• National Aeronautics and Space Administration (NASA) Service

1. Reviewer for NASA Graduate Student Research Fellowship Proposals (FINESST)
2. Reviewer for NASA Postdoctoral Fellowships Proposals
3. Reviewer for NASA ROSES Proposals
4. Reviewer for NASA Instrument Usage Manual (Cassini Instruments)
5. Reviewer for NASA Public Data System (PDS) Version 4
6. Reviewer for NASA Instrument proposals

• External Panel Service

Panel member of NASA ROSES Proposals

• Editorial Service

Editor of *Scientific Reports* (a journal from Nature Publishing Group) (2014-)

• Profession/Academic review

Science, Nature-Geosciences, Nature Astronomy, Geophysical Research-Planets, Geophysical Research Letters, Journal of Climate, Icarus, and Journal of the Atmospheric Sciences

Because of my long-term outstanding review service, I received the Outstanding Reviewer Award in 2019 and 2020 from the journal “Icarus” (one of the flagship journals of planetary sciences).